

Treatment and Use of bores after flooding

How Can Floodwater Affect my Bore?

If floodwater has inundated the ground around the base of your bore or over topped your bore casing there is a likelihood that floodwater has entered the bore and aquifer. The pathway for the floodwater is either directly into the top of the casing, if it is not sealed, or down through the space outside the casing if it has not been constructed correctly. Water may also enter through nearby sinkholes.

Floodwater entering a bore has the potential to contaminate the bore and aquifer with bacteria rendering the water within unfit for human consumption if untreated. It also has the potential to backfill the bore with sediment carried in the floodwater and/or de-stabilise sediment around the casing, washing the sediment down (slumping). This causes blockage of the screens or slots of the bore and a drop in flow from the bore.

Contamination of the Bore and Aquifer

Floodwater carries bacteria, viruses, parasites, and other pathogens (disease-causing organisms), as well as chemicals. Diseases such as dysentery, hepatitis and giardiasis can be transmitted through bores that have been contaminated by floodwaters.

Chemicals such as pesticides, fertilisers, solvents, and petroleum-based products can also pose a health risk. Pumping to waste will generally remove these contaminants.

When Can I Start Drinking Water From my Bore Again?

It is recommended that you do not drink untreated water from your bore until the bore has been pumped for 30 days and tested for bacteria contamination.

If it tests clear, you can resume drinking your bore water untreated. If the test fails you should contact this department to determine further remedial action. This department will provide a free bore water-testing service.

Why do you need to pump to Waste for so long?

Major flooding has the potential to recharge a significant volume of floodwater into your bore. This volume will be much less if the bore has been constructed and maintained appropriately. However, some contamination is still likely to occur as the contaminated floodwater can make its way to the aquifer via other poorly constructed and maintained bores and naturally occurring sinkholes.

The recommendation to pump bores for as long as 30 days is to ensure that the majority of the recharged contaminated floodwater is removed from the bore and aquifer. This reduces or eliminates the threat of bacteriological disease.

Can I Drink the Water from my Bore in the Interim?

Yes, providing that it is treated. Before testing your bore water for bacterial contamination (during the first 30 days of pumping), it is recommended that bore water for drinking and food preparation should first be disinfected.

Once water from the bore looks clean and smells OK, pump it into a "clean" tank and disinfect by chlorination or boiling.

- Boiling - Rolling boil for 5 to 8 minutes.
- Chlorination - 1.5 grams of dry pool chlorine for every 1000 litres. (Dry pool chlorine (calcium hypochlorite) should be rated at 65-70 % available chlorine).



Pollution Response Line

24 Hour Hotline

1800 064567 (*Freecall*)

CONTACT DETAILS:

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4th Floor Goyder Building
(PO Box 30) Palmerston NT

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89 993632 Fax: 89 993666

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Katherine NT 0850

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This pamphlet is one in a series on water resource topics in the Northern Territory.

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www.ipe.nt.gov.au



Northern Territory Government

Department of Infrastructure, Planning and Environment

Updated April 2002

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Detailed Procedure to Resume Pumping After Flooding

The following steps should be carried out where possible before resuming pumping to minimise adverse impacts on the pump and bore if slumping or backfilling has occurred.

1. Disconnect all power from the pump.
2. As the floodwater recedes, check the integrity of the bore head, blocking any openings where water is entering the bore. Remove any potential sources of contamination (ie. containers of fuel, oil, pesticides, fertilisers, etc., animal carcasses, spoiled food etc.)
3. If possible remove pump from bore. If pump cannot be removed go to step 9.
4. Have a qualified electrician check and repair power board, switches and pump before re-connecting.
5. Measure the total depth of the bore and compare to the constructed depth.
6. If the depth is shallower check if the screens or slots have been blocked (ie total depth of bore is within screen or slotted interval).
7. If the screens or slots have been partially blocked contact Water Resources for further advice.
8. If not re-install pump.
9. Start pump at the lowest flow rate possible and monitor the discharging water for colour and sediment. Pump for at least 1 hour.
10. Steadily increase the pump flow rate, whilst continuing to monitor the discharging water, until the normal pumping rate, prior to flooding, is reached. Keep pumping the bore to waste continuously for at least 24 hours.
11. If the colour of the water being pumped worsens and the flow rate becomes irregular, turn off the pump. Contact Natural Resources for advice. It is likely that the screens or slots of the bore have been blocked and remedial work will be required on the bore.
12. After 24 hours of pumping check that the discharge is clear. If so, a tank can be filled for treatment with chlorine.
13. Continue pumping your bore to waste and/or to your tank for treatment for 30 days.

Detailed Disinfection Procedures

Steps for disinfecting tanks and plumbing fed from bores:

1. Pump your bore until water is clear or only slightly cloudy (turbid).

3. Clean all sediment from inside of tank.
4. Part-fill the tank with water (best if filled to a pre-determined volume). While tank is filling add granulated chlorine at a dosage rate of: -
 - 150 grams per 1000 litres for turbid water
 - 75 grams per 1000 litres for clear water

**** DO NOT DRINK THIS WATER ****
5. Once mixed, run all taps until chlorine can be detected.
6. Close taps and allow the chlorinated water to stand in the pipes for 4 hours.
7. Drain the tank and the plumbing.
8. Fill the tank with water adding 1.5 grams of granulated chlorine per 1000 litres.
9. Flush the plumbing with this water.
10. The tank can continue to be filled with bore water and treated with 1.5 grams of granulated chlorine per 1000 litres and used for domestic purposes.

If the treatment cannot be maintained, water for drinking and food preparation should be obtained from the town water supply.

Water from the bore, if clear, should be safe for other domestic uses other than drinking and food preparation.

The tank and all reticulation (including hot water system) should be drained. If possible the bore water should be clear before pumping into the tank to maximise the effect of disinfection.

Household water treatment systems will not provide sufficient protection and may need to be disinfected. Membranes, cartridges and filters within water treatment devices should be replaced. Water softeners and water heaters should also receive special attention because they will serve as sources to reintroduce bacteria into your water system if not properly disinfected.

Bacteria and other living organisms can be killed through disinfection with chlorine, but disinfecting the bore will not remove other chemicals or sediment. If you suspect nitrate or man-made chemicals have been introduced to the bore, use an alternate water supply until you can confirm it is safe.